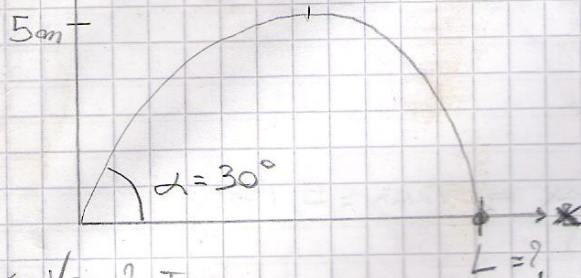


MOVIMIENTO PARABÓLICO.

① Y↑



$$X = V_{0x} \cdot 2 \cdot T_{MAX}$$

$$T_{MAX} = \frac{V_0 \cdot \sin \alpha}{g}$$

$$H_{MAX} = \frac{(V_0 \cdot \sin \alpha)^2}{2g}$$

$$Y = 5 + \frac{1}{2} \cdot 9,8 \cdot t^2 \Rightarrow -5$$

$$5m = \frac{(V_0 \cdot \sin 30^\circ)^2}{2 \cdot (+9,8 \text{ m/s}^2)} \Rightarrow 5m = \frac{(V_0 \cdot 0,5)^2}{2 \cdot 9,8 \text{ m/s}^2} \Rightarrow 98 \text{ s}^2 = V_0 \cdot (0,5) \Rightarrow \frac{9,8}{0,5}$$

$$V_0 = 51,54$$

$$t_1 = 2,54$$

$$V_0 = 19,79 \text{ m/s}$$

$$V_{0x} = \cos \alpha \cdot V_0 \Rightarrow V_{0x} = \cos 30^\circ \cdot 19,79 \text{ m/s} \Rightarrow V_{0x} = 17,13 \text{ m/s}$$

$$T_{MAX} = \frac{V_0 \cdot \sin 30^\circ}{g} \Rightarrow T_{MAX} = \frac{19,79 \text{ m/s} \cdot 0,5}{9,8 \text{ m/s}^2} \Rightarrow T_{MAX} = 1,008 \text{ s}$$

$$X = V_{0x} \cdot 2 \cdot T_{MAX} \Rightarrow X = 17,13 \cdot 2 \Rightarrow X = 34,26 \text{ m}$$

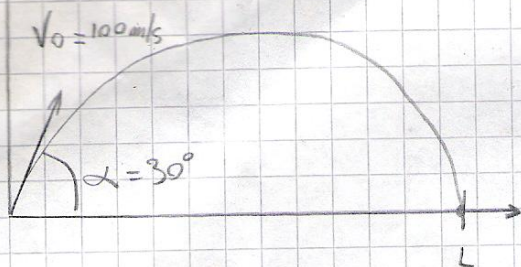
$$0 = V_{0y}^2 + 50 \Rightarrow 19,6 \text{ m/s} = V_0$$

$$19,79 = 9,89 + g \cdot t \Rightarrow$$

2)

a) $L = ?$

b) $H = ?$



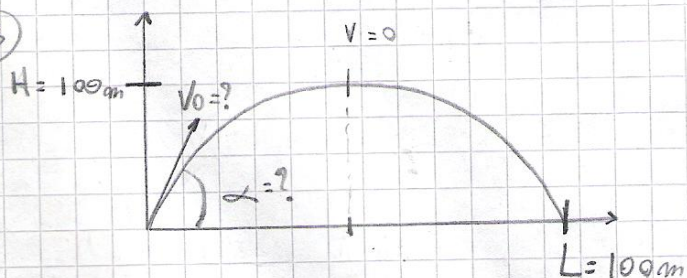
$$T_{\max} = \frac{v_0 \cdot \sin \alpha}{g} \Rightarrow \frac{100 \cdot 0,5}{9,8} = T_{\max} \Rightarrow T_{\max} = 5,10s$$

$$L = v_0 \times 2 \cdot T_{\max} \Rightarrow L = 173,20 \cdot 5,10s \Rightarrow \boxed{L = 883,32m}$$

$$H_{\max} = \frac{(v_0 \cdot \sin \alpha)^2}{2 \cdot g} \Rightarrow H_{\max} = \frac{(100 \cdot 0,5)^2}{19,6 m/s^2} \Rightarrow H_{\max} = \frac{2500 m^2/s^2}{19,6 m/s^2}$$

$$\Rightarrow \boxed{H_{\max} = 127,55m}$$

3)



$$L = 100m$$

$$H = 100m$$

$$v_0 = ?$$

$$\alpha = ?$$

$$x = x_0 + v_{0x} \cdot t$$

$$y = y_0 + v_{0y} \cdot t - \frac{1}{2} g t^2$$

$$v_y^2 = v_{0y}^2 + 2 \cdot g \cdot \Delta y \Rightarrow v_{0y} = \sqrt{2 \cdot g \cdot \Delta y}$$